# Computer Architecture and Organization

### SWAYAM Prabha Course Code: R8

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| **PROFESSOR'S NAME** | Dr. Indranil Sengupta and Dr. Kamalika Dutta |
| **DEPARTMENT** | Computer Science and Engineering |
| **INSTITUTE** | IIT Kharagpur and NIT Meghalaya |
| **COURSE OUTLINE** | This course will discuss the basic concepts of computer architecture and organization that can help the participants to have a clear view as to how a computer system works. Examples and illustrations will be mostly based on a popular Reduced Instruction Set Computer (RISC) platform. Illustrative examples and illustrations will be provided to convey the concepts and challenges to the participants. Starting from the basics, the participants will be introduced to the state-of-the-art in this field. <br><br> **Course Outline** <br> 1. Evolution of Computer Systems <br> 2. Instruction Set Architecture <br> 3. Quantitative Principles of Computer Design <br> 4. Control Unit Design <br> 5. Memory System Design <br> 6. Design of Cache Memory Systems <br> 7. Design of Arithmetic Unit <br> 8. Input-Output System Design <br> 9. Instruction Set Pipelining <br> 10. Parallel Processing Architectures |